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§ 123. **Marsilia quadrifolia in Massachusetts.**—It seems to be the opinion of the most eminent writers on botany that the *Marsilia quadrifolia* is found in this country only at Bantam Lake, Conn. Dr. Gray makes such a statement in his Manual; but in the BULLETIN, iii, p. 3, he states that it is well established in Fresh Pond, near Cambridge, Mass., although known to have been first introduced from Connecticut.

Prof. Meehan, in his "Native Flowers and Ferns," writes that "doubt is thrown on its existence in Texas, or indeed anywhere but in the one locality at Bantam Lake." In *Silliman's Journal* some years ago Dr. Gray put the question: "Is its rarity a sign that it belongs to a very old family about becoming extinct, or is it one of the newer introductions of Nature, which has not yet had time to spread here to any great extent." The latter supposition seems the more probable, as I have found several comparatively large areas of the plant in a remote part of the Charles River, above Dedham, Mass.

The long distances of these habitats from settled districts forbid the supposition that the plant was introduced there from Connecticut, though that is not impossible. Its thrifty appearance gives no indication that it is gradually dying out, but rather that it is spreading. Not only does it take possession of a large water area in the places where it was seen, but it encroaches a foot or more on the low margin of the river, where the leaves, although densely crowded, are very much smaller than those on the surface of the water. The sporocarps seem to be most numerous just at the edge of the water.

Roxbury, Mass.

HENRY L. CLAPP.

§ 124. **Growth of Exogens. II.**—Mr. John Foster, of Pleasantville, an intelligent member of the Society of Friends, and a practical nurseryman, after reading my article on the Growth of Exogens published in the BULLETIN of March, 1878, writes me as follows: "I can scarcely say that I am a full convert to thy theory of the formation of rings in the growth of timber, or hardy trees and shrubs of our climate, I have so often verified the correctness of the theory of one ring in a year. There is one particular case to which I should like to draw thy attention. A few years ago a tract of woodland was cleared off which stood directly west of Robert Parson's house in the village of Flushing, L. I., and, no doubt, has been frequently noticed by thee. An old gentleman, a member of the Society of Friends, told me that he recollected seeing it cut off by the British soldiers during the Revolutionary War, when he was thirteen years old. At the time it was cut off the second time, I counted the rings of many of the cross-sections of the largest trunks and found that the number of rings answered with wonderful regularity to the number of years which had elapsed since the timber was cut before. Many of the trees were chestnut, and we know that this genus sends up shoots the next season after the parent tree is felled, hence we were enabled to calculate with accuracy the age of the trees. I think very few trees make a distinct second growth in the same season."

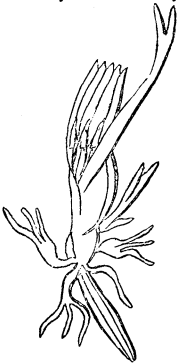
I quote the above passage from Friend Foster's letter in order to present both sides of this interesting subject, for the example cited

is certainly a very striking one in the argument to sustain the one ring theory. But he, immediately after, in the same letter, helps the other side by a statement which is just as strong, if not more conclusive, for the second growth hypothesis. He goes on to say: "Young pear stocks *do make a second growth* as I have in thousands of cases seen. The seedling or sucker, as the case may be, if cut off within a foot or fifteen inches of the ground and then transplanted, after growing rapidly say a month or six weeks forms a terminal bud, which after a little period of rest pushes again, sometimes as late as September, the sap flows a second time, and inoculation may now be accomplished if it had been neglected during the first flow of sap."

This last statement shows, in a most conclusive manner, that a second growth may, and does take place in our exogens of this latitude. I hope to show in a future article that, in regions of no frost, this is still more frequent. We see by Mr. Foster's statement, that so far as the pear tree is concerned, the occurrence is by no means abnormal. I have reason to believe that it is frequent in other genera, and, though usually the second ring is less distinct than the first, yet in some cases it is quite as prominent.

O. R. WILLIS.

§ 125. **Virescence in *Leontodon*.**—My attention was attracted to-day to a sickly-looking, malformed specimen of *Leontodon autumnale*, in which all the heads were green. Examination shows the florets to be constructed about as represented in the accompanying sketch. The corolla is ligulate and exhibits its normal dentation, but is green in color. In place of the usual tawny pappus there is an indefinite number of laciniate green expansions, interesting perhaps as showing from reversion what may be the morphology of pappus. The androecium appears normal. The pistil, however, is quite changed, the usual filiform style being much thickened and the branches aborted to the two teeth shown in the figure. In several florets I detect what appears to be phyllody of the ovule. I have specimens in alcohol for further investigation.



Brown University, Sept. 30, 1881.

W. WHITMAN BAILEY.

§ 126. **Note on *Ilex opaca*, Ait.**—I found this plant in a dwarf state last summer at Rockaway beach. I also saw it on the Navesink Highlands in abundance, and every specimen that I examined showed signs of winter-killing at the top. The head had evidently been damaged by frost every successive winter during the life of the plant. I have a specimen growing on my lawn, which for twelve successive winters has been killed at the top, up to last winter, when it lost its leaves, but the head did not die; yet the temperature fell lower than in any previous winter for the last twenty years. The thermometer indicated a temperature ranging from five to fifteen degrees below zero for several successive days.

White Plains, Oct. 13, 1881.

O. R. WILLIS.